

JC10 Rec'd PCT/PTO 23 DEC 2005

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A polymer electrolyte ~~where~~ comprising a proton conductive polymer (A) and a polymer (B) which is different from (A) ~~are mixed, characterized in that wherein~~ the a ratio of the amount of unfreezable water, represented by formula (S1), in said polymer electrolyte is no less than 40 wt% and no greater than 100 wt%[[.]], wherein the ratio of amount of unfreezable water $(S1) = (\text{amount of unfreezable water}) / (\text{amount of low melting point water} + \text{amount of unfreezable water}) \times 100 (\%) \dots (S1)$.

2. (Currently amended) The polymer electrolyte according to Claim 1, ~~characterized in that~~ wherein the ratio of the amount of unfreezable water in the polymer electrolyte to the weight of the polymer electrolyte when dried, which is represented by formula (S2), is no less than 20% and no higher than 200%[[.]], wherein the content of unfreezable water $(S2) = (\text{amount of unfreezable water in polymer electrode}) / (\text{weight of polymer electrolyte when dried}) \times 100 (\%) \dots (S2)$.

3. (Currently amended) The polymer electrolyte according to Claim 1 [[or 2]], characterized in that the proton conductive polymer (A) is a non-perfluorinated proton conductive polymer.

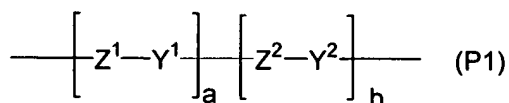
4. (Currently amended) The polymer electrolyte according to Claim 3, ~~characterized in that~~ wherein said non-perfluorinated proton conductive polymer ~~has at least one type of~~ comprises an anionic group selected from ~~among~~ a group consisting of a sulfonic acid group, a sulfone imide group, a sulfuric acid group, a phosphonic acid group, a phosphoric acid group and a carboxylic acid group.

5. (Currently amended) The polymer electrolyte according to Claim 3 [[or 4]], ~~characterized in that~~ wherein said non-perfluorinated proton conductive polymer is a proton conductive polymer having a polar group in a main chain.

6. (Currently amended) The polymer electrolyte according to Claim 5, ~~characterized in that~~ wherein the polar group ~~is made of~~ comprises ~~at least one or more types~~ a moiety selected from the group consisting of ~~among~~ a sulfonyl group, an oxy group, a thio group, a carbonyl group, a

phosphine oxide group, a phosphonate group, an ester group, an amide group, an imide group and a phosphagen group in said proton conductive polymer.

7. (Currently amended) The polymer electrolyte according to Claim 5 ~~[[or 6]]~~, ~~characterized in that~~ wherein said proton conductive polymer ~~is made of at least one or more types of selected from among~~ comprises an aromatic based polymers polymer having repeating units that can be represented by the following formula (P1)~~[[.]]~~



~~(Here, wherein,~~ Z¹ and Z² indicate an organic group that includes an aromatic ring and each of these may indicate two or more types of groups[[.]]; Y¹ indicates an electron withdrawing group[[.]]; Y² indicates O or S[[.]]; and a and b indicate independent integers from 0 to 2, where a and b are not zero simultaneously. [[.]]

8. (Currently amended) The polymer electrolyte according to ~~any of Claims~~ Claim 1 ~~[[to 7]]~~, ~~characterized in that~~ wherein said polymer (B) is a cross linking polymer and said proton conductive polymer (A) is substantially uniformly mixed with the cross linking polymer (B).

9. (Currently amended) The polymer electrolyte according to Claim 8, ~~characterized in that~~ wherein said cross linking polymer (B) ~~is at least one type~~ comprises a moiety selected from the group consisting of a radical polymerizing polymer, an epoxy based polymer, a melamine based polymer, a phenol resin based polymer, a urethane based polymer, a urea based polymer and an inorganic cross linking polymer.

10. (Currently amended) The polymer electrolyte according to Claim 9, ~~characterized in that~~ wherein said cross linking polymer (B) is an inorganic cross linking polymer, and the inorganic cross linking polymer has an anionic group.

11. (Currently amended) The polymer electrolyte according to Claim 10, ~~characterized in that~~ wherein the anionic group of said inorganic cross linking polymer ~~is at least one or more types~~

comprises a moiety selected from among the group consisting of a sulfonic acid group, a sulfone imide group, a phosphonic acid group, a phosphoric acid group and a carboxyl group.

12. (Currently amended) A polymer electrolyte membrane ~~made of~~ comprising the polymer electrolyte according to ~~any of Claims~~ Claim 1 ~~[[to 11]]~~.

13. (Currently amended) A membrane electrode assembly, ~~characterized by being made of~~ comprising the polymer electrolyte ~~or the polymer electrolyte membrane~~ according to ~~any of Claims 1 to 12~~ Claim 1.

14. (Currently amended) A polymer electrolyte fuel cell, ~~characterized by being made of~~ comprising the polymer electrolyte ~~or the polymer electrolyte membrane~~ according to ~~any of Claims 1 to 13~~ Claim 1.

15. (Currently amended) The polymer electrolyte fuel cell according to Claim 14, ~~characterized by being~~ wherein the fuel cell is a direct type fuel cell ~~using at least one type selected from among~~ adapted to use a fuel comprising alcohol and dimethyl ether ~~of which the carbon number is 1 to 3, and mixtures of these with water as a fuel.~~

16. (New) A membrane electrode assembly, comprising the polymer electrolyte membrane according to Claim 12.

17. (New) A polymer electrolyte fuel cell, comprising the polymer electrolyte membrane according to Claim 12.

18. (New) The polymer electrode fuel cell of claim 15, wherein the fuel further comprises water and the dimethyl ether has a carbon number of 1 to 3.